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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,424	11/02/2001	Johan Agus Darmawan	020303-007200US	4303
7590 10/27/2003				
Henry K. Woodward Beyer Weaver & Thomas LLP 590 West El Camino Real Mountain View, CA 94040				
			EXAMINER TRAN, TAN N	
			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/053,424

Applicant(s)

DARMAWAN, JOHAN AGUS

Examiner

TAN N TRAN

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on response on filed 09/15/03.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-21-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

**Claim Rejections - 35 USC § 102**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim 15 stand rejected under 35 U.S.C. 102(e) as being anticipated by Udrea et al. (2002/0041003).

With regard to claim 15, Udrea et al. discloses a silicon on insulator comprising a semiconductor body including a silicon substrate 11, a silicon oxide layer 50 formed on the silicon substrate 11 for removing heat from the active structure 18, and a silicon layer 20 overlying the silicon oxide layer 50, a heat sink layer 45 formed of diamond in the portion of the substrate 11, the active structure 18 formed in the silicon layer 20 overlying a portion of the substrate 11, the heat sink layer 45 abutting the silicon oxide layer 50 and the silicon oxide layer 50 electrically insulating the heat sink layer 45 from the active structure 18. (Note line 1, paragraph 0079, page 7; lines 1, paragraph 0118, page 12, figs. 10a and 13c of Udrea et al.).

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Udrea et al. (2002/0041003) in view of Lin (6,483,147).

With regard to claims 21-23, Udrea et al. discloses the metal layer comprises copper or aluminum. (Note lines 1-5, paragraph 0040, page 4, figs. 10a, 13c of Udrea et al.), but Udrea et al. does not disclose the metal layer formed over a refractory metal which made of titanium nitride or titanium tungsten.

However, Lin discloses the metal layer 52 comprises gold or copper or aluminum and formed over a refractory metal 50 such as titanium nitride, titanium tungsten. (Note lines 64-67 in column 3 and lines 1-9, column 4, figs. 7,8 of Lin).

Therefore, it would have been obvious to one of ordinary skill in the art to form the Udrea et al.'s device having the metal layer formed over a refractory metal which made of titanium nitride or titanium tungsten such as taught by Lin in order to remove heat from the component.

### **Response to Arguments**

3. Applicant's arguments filed 09/15/03 have been fully considered but they are not persuasive.

It is argued, at page 1 of the remarks, that "Udrea do not disclose the silicon on insulator (SOI) semiconductor device as defined by claim 15 and Udrea in view of Lin do not suggest the semiconductor device as defined by dependent claims 21-23". However, Note line 1, paragraph 0079, page 7, figs. 10a and 13c of Udrea et al. does show a silicon substrate 11, a silicon oxide layer 50 formed on the silicon substrate 11, and a silicon layer 20 overlying the silicon oxide layer 50.

It is argued, at page 2 of the remark, that "the use of an insulating material as the heat sink as taught is not a metal layer in the portion of the substrate in which silicon has been removed by etching as required in element c) of claim 15". However, lines 1-4, paragraph 0118, page 12, figs. 10a and 13c of Udrea et al. do show the heat sink layer 45 can be made of diamond, aluminum nitride, boron nitride or other materials with good electrically insulating properties and high thermal conductivity. It means that the heat sink layer 45 can be made of either diamond, aluminum, boron nitride, or other materials. Thus, the heat sink layer 45 can be made of diamond that will remove the heat from the component formed within the silicon layer 20. Thus, Applicant's claims 15, 21-23 do not distinguish over Udrea et al. and Lin references.

**Conclusion**

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tan Tran whose telephone number is (703) 305-3362. The examiner can normally be reached on M-F 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TT

Oct 2003

  
**Minhloan Tran**  
**Primary Examiner**  
**Art Unit 2826**